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# The College Board Review

NEWS AND RESEARCH OF THE  
COLLEGE ENTRANCE EXAMINATION BOARD

**BINDING COPY**

VOL. 1, NO. 5

NEW YORK, N. Y.

FALL 1948

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## PACIFIC COAST OFFICE TO OFFER COMPLETE EXAMINATION SERVICE IN THE WEST

THE Pacific Coast Office of the Educational Testing Service is now handling all aspects of the College Board's examination program in the western area. Beginning September 1, 1948, all inquiries, applications, and fees from candidates in the western area should *no longer* be sent to the Princeton office; instead, they should be sent directly to the Pacific Coast Office. The "western area" includes eleven states: namely, California, Oregon, Washington, Idaho, Montana, Wyoming, Utah, Colorado, Nevada, Arizona, New Mexico; and, in addition, Alaska, Hawaii, Australia, and all Pacific Islands except Japan and For-

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## EFFECTS OF GROWTH AND RETESTING ON S.A.T. VERBAL SCORES

### Ten-Month Growth of Moderate Importance; Practice Effect Small

BY RICHARD PEARSON  
Pacific Coast Office

ARE verbal scores on the Scholastic Aptitude Test significantly affected by growth in ability between the junior and senior years of secondary school? Admissions officers have frequently asked this question with regard to candidates tested in June of their junior year, or in December-January of their senior year. Another question of interest is whether "repeaters" (those who take the test a second time) gain significantly because of practice effect.

The Verbal test scores made by a large group of repeaters provide an answer to both these questions. Analysis indicates that candidates taking the S.A.T. a second time do not, as a result of practice, make important score-increases on the Verbal test. For the great majority of candidates, tested within three to six months of one another, differences in test scores due to growth are also of negligible importance; but for candidates tested in their junior year, an allowance for growth is desirable.

### The S.A.T. Repeater Population

During the years 1942 through 1945 a total of 7,396 college-entrance candidates repeated the Scholastic Aptitude Test. For

(Continued on page 58)

## THE COLLEGE BOARD REVIEW

News and Research of the  
College Entrance Examination Board

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## Pacific Coast Office

(Continued from page 57)

*mosa. Colleges and secondary schools are urgently requested to give appropriate publicity to this announcement.*

The mail address of the Pacific Coast Office is P. O. Box 775, Berkeley, Calif. Telegrams may be addressed to 2207 Shattuck Ave., Berkeley, Calif.

Details concerning the closing dates for the receipt of applications and fees at each office of the Board are given on the back cover of this issue of the REVIEW.

The establishment of the Pacific Coast Office enables the College Entrance Examination Board to provide improved services for colleges and secondary schools in the West. General advisory service is available from the Pacific Coast Office regarding any aspect of the Board's examination program; this program includes tests for placement as well as for admission. As a further service, the Pacific Coast Office will act as western distributor of the tests of the Cooperative Test Division of the Educational Testing Service (formerly known as the Cooperative Test Service of the American Council on Education). A general catalog describing all the tests of the Educational Testing Service is now obtainable, on request, from either the Princeton or the Pacific Coast offices.

## NEW MEMBERS OF THE BOARD

The Board extends a cordial welcome to the following ten colleges and universities, which were elected to membership at the meetings of the Board in 1947-48: Alfred University, Denison University, Franklin and Marshall College, Hollins College, Kenyon College, Manhattanville College of the Sacred Heart, Scripps College, University of Massachusetts, University of Virginia, Western Reserve University. The addition of these institutions brings the number of member colleges to 79.

## GENERAL EISENHOWER TO ADDRESS MEETING OF COLLEGE BOARD

General Dwight D. Eisenhower, who has recently been installed as President of Columbia University, will be the luncheon speaker at the October, 1948 meeting of the College Entrance Examination Board. The luncheon will be attended by officers and representatives of the Board and invited guests.

## EIGHT COLLEGES LEAD IN ADOPTING UNIFORM ACCEPTANCE DATE

In February of this year, eight Board colleges agreed to set June 15 as the earliest mandatory date for candidates' acceptance of offers of admission. An important step toward unification of admission practices, the agreement reads as follows:

The institutions listed below have, by common agreement, bound themselves not to require any candidate admitted as a freshman to give notice before June 15, 1948, of his decision to attend one of these institutions or to accept financial aid from it.

This policy has been agreed upon so that a candidate may be able to give consideration to all opportunities available to him. It should be emphasized, however, that whenever a student can reach a decision before this date, he may with propriety notify the institution.

Brown University  
Columbia University  
Cornell University  
Dartmouth College

Harvard University  
University of  
Pennsylvania  
Princeton University  
Yale University

(Continued on page 67)

## Frank H. Bowles Becomes Director of the College Entrance Examination Board

BY GEORGE W. MULLINS

*Chairman of the Executive Committee*

**M**<sup>R.</sup> Frank H. Bowles has been appointed Director of the College Entrance Examination Board, effective August 1, 1948. He succeeds Mr. Henry Chauncey, who resigned last April in order to devote full time to the newly organized Educational Testing Service. Immediately prior to assuming the directorship of the Board, Mr. Bowles was chairman of the three-person interim committee which conducted the Board's affairs during the period that the directorship was vacant.

### Long Active in Board Work

Mr. Bowles has been active in Board work since 1934, when he became Director of Admissions for Columbia University. Always keenly interested in the Board's program, he has served as Chairman of the Committee on Nominations, the Auditing Committee, the Committee to Revise the Constitution and By-Laws, the Committee to Recommend Associations to Apply for Membership in the Board, and the Special Committee on the Reorganization of the Board.

### War Service

On leave of absence from Columbia during the war, Mr. Bowles served the Navy as a civilian consultant on the V-1 program, and later, with a commission in the Naval Reserve, was Assistant Director of the Standards and Curriculum Division, Bureau of Naval Personnel. This Division was concerned with naval training curricula, tests of aptitude and achievement, and related functions. Mr. Bowles left the Navy in 1945 with the rank of Lieutenant Commander.

### A Leader in Education

Well known to educators, Mr. Bowles is Chairman of the Commission on Institutions of Higher Education of the Middle States Association; and for thirteen years,



FABIAN BACHRACH

**FRANK H. BOWLES**

*Director of the College Entrance Examination Board*

from 1934 to 1946, he was secretary of the Committee on the Classification of Universities and Colleges of the Association of American Universities.

In 1947, serving as a special assistant to the Chancellor of the University of Puerto Rico, Mr. Bowles instituted a selective testing system at the University. Last spring, Mr. Bowles was again called to Puerto Rico to advise the Chancellor on student-faculty relations.

The College Board is fortunate to have as its new director a man who is so rich in experience of the many aspects of testing and education. He will provide vigorous leadership and a comprehensive understanding of the efforts and objectives of the Board. We are confident that the member colleges of the Board will continue to find his enthusiasm contagious and his judgment sound.

## Publication News

The following publications will be of interest to REVIEW readers:

**ANNUAL HANDBOOK—1949. TERMS OF ADMISSION TO THE COLLEGES OF THE COLLEGE ENTRANCE EXAMINATION BOARD.** This is a compilation of statements from each of the Board's colleges on admissions policies, curriculum, financial aid, job opportunities, and housing. There is also an introductory article: "Philosophy of the Board's Tests." Complimentary copies are regularly sent to institutions most closely concerned with Board activities. Additional copies: \$1.50, from the College Entrance Examination Board, 425 West 117 Street, New York 27, N. Y.

**ANNUAL REPORT—1948. FORTY-EIGHTH ANNUAL REPORT OF THE DIRECTOR, COLLEGE ENTRANCE EXAMINATION BOARD.** This is a review of the Board's activities from October 1, 1946 to September 30, 1947, with a preview of the Board's position and functions after the formation of the Educational Testing Service. 120 pp. Price: \$.50, from the College Entrance Examination Board, 425 West 117 Street, New York 27, N. Y.

**C.E.E.B. BULLETIN OF INFORMATION FOR 1949.** This contains descriptions of tests, sample questions, testing dates, and lists of testing centers, as well as a detailed explanation of the Pacific Coast office, which is to handle registration and scoring for candidates in the West. 33 pp. Free upon request from the College Entrance Examination Board, Box 592, Princeton, N. J.

**EDUCATIONAL TESTING SERVICE: TESTS AND TESTING PROGRAMS.** This is the first announcement of the various projects now under the supervision of the ETS. Brief descriptions of the tests or programs (including the College Board series) are followed by directions for obtaining more complete information. 11 pp. Free upon request from the Educational Testing Service, Box 592, Princeton, N. J.

### BINDERS FOR THE "REVIEW"

A new supply of hard-covered loose-leaf binders for the REVIEW has been received. Covered in dark blue cloth and stamped in gold leaf, the binders are ten inches high and will fit into most bookshelves. They are available at cost, \$2, from the College Entrance Examination Board, Box 592, Princeton, N. J.

## RECOMMENDATION ON THE USE OF PROGRAMS 1, 2, AND 3

The question of which of the three optional morning test programs a given candidate should take has been the subject of widespread discussion. The composition of these three programs is:

*Program 1:* Scholastic Aptitude Test (Verbal and Mathematical Sections)

*Program 2:* Scholastic Aptitude Test (Verbal Section) and Intermediate Mathematics Test

*Program 3:* Scholastic Aptitude Test (Verbal Section) and Comprehensive Mathematics Test

The verbal sections differ only in length, but the mathematical sections differ as to the amount of mathematical preparation needed. The following table shows the background in secondary school mathematics presupposed in the mathematical section of each program:

Program	Years of Study
1	2 or less
2	2½ to 3 (or 3½ without trig.)
3	3½ to 4, with trig.)

A serious problem arises through the contrasting requirements of different colleges with respect to the three programs. If a candidate is applying to two institutions whose prescriptions conflict, he finds it impossible to satisfy both colleges simultaneously and his only recourse is to take the tests twice.

### Recommended Requirement

Obviously there is need for some common agreement. A majority of the colleges represented at the April meeting of the Board indicated their willingness to subscribe to the following policy, which is recommended to any college undecided as to its own course, and to any candidate whose intended college does not instruct him to the contrary:

*A. A candidate who is studying mathematics during the year in which he is examined should take the program which contains the highest-level mathematical section for which his training has prepared him.*

*B. A candidate who is NOT studying mathematics during the year in which he is examined should take Program 1 regardless of the extent of his training.*

Recency of training in mathematics is obviously the determining factor in the distinction between recommendations A and B.

## THE EDUCATIONAL TESTING SERVICE: THE FIRST TEN MONTHS

ON January first, the College Entrance Examination Board merged its testing functions with those of two other groups, the American Council on Education, and the Graduate Record Office of the Carnegie Foundation for the Advancement of Teaching. The result was the Educational Testing Service, a new, non-profit agency which would undertake testing for these and for other organizations.

An unprecedented action, the merger evoked a tide of congratulation. *School and Society* noted that "ETS culminates years of effort." The *Educator's Dispatch* proclaimed: "Scattered testing services . . . have now been merged into the single, strong, well-financed Educational Testing Service."

In its first ten months the ETS, rather than scatter its efforts in new endeavors, has preferred to coordinate, consolidate, and build slowly. Major efforts have gone into coordinating the work of the previously independent offices, while continuing without interruption the twenty-seven testing programs of the original agencies. Now, finally, plans for the over-all organization are nearing completion. And, with the gradual establishment of national headquarters at Princeton, N. J., a high degree of physical unity is in prospect.

### Professional Cooperation Sought

Three principles have marked these initial steps. First, any testing program which affects a particular area of education should be controlled by the group which is most intimately concerned with the problems and purposes of that area. As an example, the College Board retains policy control of its program of college entrance examinations, setting standards and defining objectives for examinations. Similarly, the Medical College Admission Test is to be prepared and administered by the ETS with the close cooperation and continuing

advice of the Association of American Medical Colleges.

Besides contractual service to other similar agencies, the ETS prepares tests on its own initiative. Outstanding are the Co-operative Achievement Tests, for sale to schools and colleges. For these, too, the ETS relies upon the advice of specialists in academic subjects.

A second guiding principle lays emphasis on empirical verification. How well, for example, does the CEEB Comprehensive Mathematics Test predict grades in engineering school? Is the English Composition Test a fair yardstick of writing ability? The ETS program includes systematic research on the practical effectiveness of all its tests.

### Research Studies in Progress

Still a third principle is depth of research and the development of supplementary types of measures. The ETS is studying basic test theory and is experimenting with tests of ability and personality; is examining such interests and attitudes as may affect college success; and is attempting to pry from test scores differential prediction of success in various subjects, e.g., physics vs. history. As a long-term contribution to the field of educational measurement, the ETS has established two annual fellowships under which students may work toward a doctorate in psychometrics at Princeton University.

The number and variety of requests for new services during these first months have been healthy signs for the future development of the ETS. Some new projects have been initiated, though many others have had to be postponed until organization is more complete. For example, the staff is now working on the development of entrance examinations for the Naval Postgraduate School at Annapolis. Previous experience indicates that such a study may well yield insights valuable for other testing programs and for test theory.

## THE 1948 NROTC EXAMINATION

The Navy and Marine Corps have announced the third annual competition for students applying for scholarships in the Naval College Training Program. The Naval Examining Section of the Educational Testing Service will handle the nationwide administration of the Navy College Aptitude Test, which is required of all applicants. Only those students who pass the examination and meet other Naval requirements will be accepted.

Application blanks and bulletins of information are being distributed through the schools and colleges in the States and Territories, and by the Naval Examining Section of the Educational Testing Service, P. O. Box 709, Princeton, N. J. The examination is to be given on December 11, 1948. Completed applications for the examination must be received by the Naval Examining Section of the ETS in Princeton not later than *November 15, 1948*.

## THE MEDICAL COLLEGE ADMISSION TEST

The Association of American Medical Colleges has appointed the Educational Testing Service to conduct its testing program during the academic year 1948-49. The Medical College Admission Test will be administered on October 30, 1948 and on February 7, 1949. All applicants for admission to classes beginning in the fall of 1949 should plan to take the test on one of these two dates. Whenever possible, candidates should apply for the earlier administration, since many medical colleges will begin selection of students for next year's class late in the fall of 1948.

Formal application for the examination may be made only through the Educational Testing Service, P. O. Box 592, Princeton, N. J. Completed application blanks for the October 30 administration must be received at the office of the ETS *on or before October 16, 1948*; those for the February 7 test, *on or before January 24, 1949*.

In addition to the sections of the test measuring general scholastic aptitude there will be two achievement sections entitled Premedical Science and Understanding of Modern Society.

## "CHOICE OF COLLEGE" RULE

The controversial rule whereby a candidate registering for College Board examinations must indicate his order of preference for the colleges to which his scores are to be reported continues to occupy a prominent place in Board discussions.

The reasons for and against the rule were discussed at length by the full Board at its April meeting, and the Chairman was asked to appoint a committee to bring a recommendation to the Board for action at its meeting on October 27. A previous committee report had failed to gain acceptance at last October's meeting. The new twelve-member committee is headed by Dean Henry Dyer of Harvard, chairman of the original committee.

The committee had its first meeting in New York on June 26 and framed a recommendation for a change in the rule. Under the committee's plan the candidate would be permitted either to list any group of two or three colleges as "equally preferred," or to rank them in preferential order, whichever he wished. An additional change would be a listing, on the score-report forms sent to the colleges, of the institutions to which the report was being sent, together with the candidate's order of preference for those institutions. This plan has been reported informally by mail to Board representatives, and the committee is studying the replies in preparation for its report at the October meeting.

## English Examination for Foreign Students Withdrawn from Eastern Hemisphere

Because of prevailing difficulties of monetary exchange, the Educational Testing Service has been forced temporarily to suspend all administrations in the Eastern Hemisphere of the English Examination for Foreign Students. The program in Central and South America will continue as before, and the examination is still available to the colleges for administration in the United States. For details, write to the Educational Testing Service, P. O. Box 592, Princeton, N. J.

# THE COLLEGE ENTRANCE EXAMINATION BOARD: ORIGINS AND CURRENT TRENDS

BY HENRY CHAUNCEY

*President, Educational Testing Service  
Formerly Director, College Entrance Examination Board*

*Following are excerpts from an address delivered before the Association of College Admissions Counselors in Highland Park, Ill., on November 13, 1947. Since then, the College Board has delegated the technical aspects of its testing activities to the Educational Testing Service. The address, however, still offers a faithful representation of the role of the College Board today.*

WHY was I asked to address you today? Probably for the same reason that makes me very glad to do so. And that is, that the College Board and the educators of the Middle West know far too little of each other. We smile formally, but vaguely, when we meet. Yet even if we do not work together, I think both of us—and education in general—can benefit from our closer acquaintance. I should like to see our formal smiles replaced by a hearty handshake, followed by frank and open talk or argument . . .

## What Is the College Board?

When I talk to you today it is not to win converts, but merely to exchange ideas with you, and to paint a picture of how the College Board operates.

Let us examine our canvas. In the center of the picture stands a modest, two-story red brick structure, a converted garage. That is the physical College Board, which serves as the operating center. This center is sometimes confused with the whole. Surrounding the center and dominating it are the colleges and secondary-school associations which, as voting members of the Board, determine policy and exercise control. The College Board is a wholly voluntary, non-profit organization of these colleges and associations. The Board's pri-

mary purpose is to promote cooperation in the solving of educational problems relating to college admission. Its main function in this field is testing.

Working closely with the secondary schools and colleges, the full-time professional testing staff constructs tests of fitness and readiness for college. Candidates for admission to college can take these examinations, under strictly standardized conditions, at one of more than 450 centers throughout this country and in foreign countries. Every College Board Examination Center has its own supervisor and proctors, appointed and instructed by the Board. Examinations start on time, and end on time. As soon as the proctor has collected the candidates' papers, he forwards them to the College Board, where they are scored once by hand and once by machine; each scoring-method serves as a check on the other. The Board then reports each candidate's scores to the colleges of his choice. The colleges interpret and use the scores as they see fit.

That, briefly, is what the College Board does. But before I go into detail, let me tell you how we happened to get started.

## Birth of the Board

Walking through the College Board's quiet but busy office, I often find it hard to realize that the birth of the Board, in 1900, was the signal for an educational tempest that shook the ivy on many a college campus. Despite the competent midwifery of Nicholas Murray Butler, morally seconded by Charles William Eliot, we had a rough birth. Remember, though, that the year was 1900.

"Rugged individualism" was the spirit of those times. A feeling of complete inde-

pendence marked not only the individual, but business and the professions, and certainly, education—in the East as in the West . . . . Each college had its own idea of "what every young man should know." This meant that each school preparing students for admission to college had to feed its students various educational nutriment, compounded according to the formulae of the various colleges. Perhaps University A demanded six orations of Cicero, while College B required only four orations but placed great emphasis on prose composition. Imagine the plight of the teachers! Furthermore, each college held its examinations where and when it so chose.

The schools were understandably indignant. Yet the idea of the colleges cooperating on anything more serious than football was unthinkable. Radical. "Death-blow to independence" was the battle-cry. And so the secondary schools were left, teaching madly in all directions. Then President Nicholas Murray Butler stepped in. Through what he later described as a system of "trench warfare," he quietly circulated the idea of standardized entrance examinations until, in 1899, at a meeting of educators, he dared to introduce a resolution to set up a cooperative "College Entrance Examination Board."

The storm which had been gathering broke. One vigorous opponent jumped up and rehearsed the old arguments. The establishment of such a Board might invade the prerogatives of the colleges. Furthermore—and this was the climax of his argument—it might prevent the admission of certain students, such as sons of benefactors and sons of trustees, who (presumably, in the speaker's mind) might have trouble in passing our entrance exams!

President Eliot of Harvard quietly took the floor. The Board, explained President Eliot patiently, would not determine admission to college, but would only give examinations, and certificates showing the results of the examinations. When these certificates were taken to any given college, that

college might, said Mr. Eliot, do with them exactly as it pleased. A college might even, he continued, decide that it would accept only students who could not pass the Board's examinations.

The vote which followed directly was unanimous in favor of establishing the Board.

#### Early Examinations

The Board held its first meeting in November, 1900. The members, working in committees, constructed standard essay-type examinations in each of forty subjects that might be required for entrance by various colleges. Ranging from Cicero and Caesar to medieval history, these were all subject examinations, similar to finals which a teacher might himself prepare, and were based on a syllabus which the Board distributed to the schools. The student took each examination as he finished the appropriate course . . . .

But as time passed the colleges discovered that detailed mastery of a large number of individual subjects was not as important as it had been thought to be, and that the school record was at least as good an index of success in college as the examination record.

These views were aired at Board meetings. How about tests that measured understanding as well as facts, was the new feeling. In response, the Board members in 1916 worked out a new plan. Now a student would offer only four examinations, all to be taken in the senior year—still essay type, but now comprehensive. That is, instead of examinations on Cicero, Caesar, etc., there would be simply one Latin comprehensive. This New Plan further suggested, in response to experience, that colleges attach greater weight than heretofore to the student's school record.

These comprehensives proved to be good predictors of college success if—and a significant "if"—the student attended a school which organized its work by the College Board's published syllabus and

which gave constant drilling in essay writing on the prescribed subjects.

But by the 1930's how many students attended such schools? Who did go to college? Remember, the sharp rise in college applications and enrollments in this country began during the '20's. Along with the private-school students came a mass of students from public high schools. Some of these public schools hardly suspected the existence of the College Board. They could not be expected to prepare students for the Board exams. And they did not. Candidates from such schools, suddenly faced with College Boards, were often at a loss—completely unprepared, psychologically as well as academically.

The matter came to a climax with one group of candidates. Some Eastern colleges that required Board examinations were anxious to have a more national representation in their student bodies. So they set up regional scholarship programs throughout the country. But the scholarship candidates, being mainly from public high schools, did relatively poorly on our examinations. The irony is obvious. And there were other drawbacks in the Board examination program then used for scholarship purposes. First, the tests took a whole week. For a student who lived at a distance from a College Board examination center this arrangement involved considerable expense. And second, since the examinations were held in late June, results were not known until the end of July, which was very late for informing a student whose attendance at college depended on a scholarship.

#### The Objective Scholarship Tests

Obviously a new testing program was indicated. In 1937 Harvard, Yale, Princeton, and Columbia asked the College Board to prepare a special series of examinations to be used in the selection of scholarship students. This scholarship testing program was to differ in a number of ways from the admission examinations then in use. In

the first place, the scholarship tests were to come earlier in the year, so that candidates could be informed of their success, or lack of it, by the middle of May. Secondly, the scholarship tests were to be administered on one day instead of being spread over a week. In this way individuals who lived far from examining centers would not be put to heavy expense. Furthermore, a center was to be established—without additional charge—for any candidate who lived more than 65 miles from a regular center. Thirdly, and most important, the examinations were to be of a type that would be fair to students from all kinds of schools. Experience had indicated that objective tests, which permitted more accurately planned and more extensive sampling of subject matter, were best suited to this purpose. They also took less time; a series of tests could be administered in one day.

The Board's first scholarship series consisted of a Scholastic Aptitude Test, which yielded scores on verbal aptitude and mathematical aptitude, and a battery of achievement tests, of which each candidate took three. The achievement tests were in social studies, chemistry, physics, biology, French, German, Latin, and Spanish. An English composition test and a spatial aptitude test were later added.

How did the new tests work? The entire scholarship testing program worked well from the start. Despite its radical newness, there were few complaints. Prediction of college success based on the scholarship tests was as accurate as prediction based on the longer series of essay examinations, and the tests were more suitable as a basis for comparing students from public and private schools.

#### Objective Tests Adopted for Regular Series

After the first year, some colleges used the objective scholarship tests for admission purposes, and the program grew steadily in popularity. When, because of the war, it became necessary in the Spring

of 1942 to admit students in time for the summer term, the colleges found it necessary to substitute the one-day series of objective tests, which could be scored and reported promptly, in place of the essay examinations . . . . What had originally been a test battery for scholarship selections, therefore, became the regular admission tests; and instead of being administered once a year in April, the tests were administered four times a year . . . .

### Stability of the Board's Goals

Thus, as American higher education has grown and changed, so too has the Board grown and changed. We have come a long way from 1900 and forty subject tests, essay style, to our present short-answer achievement tests and the Scholastic Aptitude Test. And we have grown from 15 original member-colleges to 71\*; from 1,022 candidates taking our exams each year, to over 70,000.

Although our methods of testing have changed, we have diverged not at all from our original goal—of conserving and enriching the human resources of this country by helping to ensure that the best students get to college . . . .

The fixed star which guides our present course is the star of freedom. Or I should say freedoms, for there are three: freedom from bias in favor of any group of students; freedom of curriculum and teaching-methods in schools; and for the colleges, freedom to use the scores on our tests as they see fit . . . .

### Place of Tests in the Admissions Program

It is interesting to note that when the colleges first used our tests, they almost without exception placed too much faith in them. The cold, immutable statistic is, I suppose, always tempting, in that it gives

\*With the election of eight additional colleges in April, 1948, the number of member-colleges is now 79.

the illusion of a perfectly accurate criterion. But we emphatically discourage such dependence. We implore that test scores never be used as the sole basis of admission, but that they be considered along with the school record, the principal's recommendation, and a personal interview . . . .

If I protest too much about over-emphasis on test scores, it is because we prefer to err on the side of caution, and prevent misuse of test results. Actually, the scores do provide good clues to college success, as we know from constant research studies. The exact degree of relationship depends, of course, on many factors: the type of curriculum, the range of ability of the students, the reliability of the college grades, the uniformity or lack of it in student programs, etc. In studying the effectiveness of the Board's tests, it is, therefore, necessary to make a large number of studies. Of the 19 research studies now in progress at the College Board laboratory, many concern the validity of our tests . . . . We are continually engaged in such studies . . . .

### New Tests

Our research and test construction staffs are constantly working to improve the tests. But, assuming that we shall eventually approach the upper limit of validity of our present tests, how else can we help the college admissions officers? There seem to be two broad ways. First, by constructing more specialized aptitude tests. Realizing that it takes one kind of thinking to prepare a legal brief, and another kind to design a skyscraper, we are at work on tests that will measure, not knowledge or background, but different elements in the reasoning process, different types of thinking. These should be of value not only in admissions, but in guidance programs as well. An extensive battery of tests has been administered at several institutions and we are awaiting the course grades, which will be studied in relation to the test scores, to

determine if the tests are useful in differential prediction.

There is a second way in which we may be able to provide additional help for admissions officers. Not only may we be able to get at additional and more specialized intellectual factors; we may also be able to develop measures of some of the important non-intellectual factors that influence college success. For a student lives as well as learns while he is in college. We are scouting this broad area, and, at the present time, are actively working in two fields. We have constructed a number of tests of "persistence"—"stick-to-itiveness." To be sure, it seems paradoxical to test in so short a time a quality which by its nature requires a long span of time. Yet we have reason to believe that there are significant elements in persistence which we can measure in a test. The tests which we have developed were tried out at the University of Washington along with the Scholastic Aptitude Test. A year or so from now we should know whether any of them adds to our ability to predict success in college.

We have also prepared an experimental form of an attitude, interest, and biographical questionnaire specifically designed to distinguish between students who do better and those who do worse than one might expect on the basis of entrance test scores . . . . Various types of material have been included in this questionnaire, and we hope that some, at least, will prove significant. If so, such a questionnaire, in addition to its general usefulness, should be of particular help to admissions officers in deciding about borderline candidates.

#### Growing Importance of Expanded Test Program

These are but a few of the projects in progress at the Board's research department from which we hope ultimately to develop new tools for the college admissions officers. We are always on the alert

for new ideas . . . and eager for suggestions and criticisms, especially from a group like this, which is concerned with the same problems but is likely to have different approaches. Only thus can we continue with any success our attempt to serve secondary and higher education in this country. For our tasks will shortly become bigger in mass, and wider in scope. Testing has taken great steps during the past twenty-five years. A period of even greater development, I am confident, lies ahead.

I am no prophet. My "predictions" are not provably "valid." But everywhere I go, I find increasing interest and new enterprises directed toward the tailoring of education to fit the individual. And I think that this increasing emphasis on the individual student, in the face of growing numbers of students, must mean that testing will play a larger and larger role in college admissions and guidance programs. Not, perhaps, testing as we have known it in the past—testing that measures only isolated hues or qualities of a student's talents—but testing which displays the full spectrum of his personality. Keeping pace with the developments in education, no less a development must take place in testing itself. The efforts of the College Board are hopefully turned toward this end.

#### UNIFORM ACCEPTANCE DATE

*(Continued from page 58)*

On March 1 the member colleges of the Board were notified by the Secretary of this decision and were invited (at the suggestion of the eight colleges) to subscribe to the agreement. Since that time the following colleges have notified the Board of their desire to join in the common policy: Adelphi, Bowdoin, Bryn Mawr, Haverford, M.I.T., Randolph-Macon Woman's College, Rutgers, Simmons, Chicago, Vassar, Wellesley, Wells, and Wheaton.

# EFFECT OF GROWTH AND RETESTING ON S.A.T. VERBAL SCORES

(Continued from page 57)

each of these candidates two Verbal test scores are available: the score initially received on the test, and a comparable score received on a test administered after a lapse of time. It can readily be seen that this group provided a unique means of evaluating the effect of growth on test scores.

The present study is concerned with two samples drawn from these repeaters. We shall first examine the effect of retesting on 3,539 girls who were initially tested in June of their junior year and retested in April of their senior year. There were 1,013 such candidates in 1942-1943; in 1943-1944 the number was 1,122; in 1944-1945 it rose to 1,404. The distinguishing feature of this group for our present purposes is that the interval between test and retest was the same for all candidates, i.e., ten months.

The second sample consists of 6,362 candidates, of whom different groups repeated the test at intervals of from two months to one year. This sample includes the junior-year girls repeating after ten months, but also includes senior-year girls and junior- and senior-year boys.

## Influence of Practice

Increases in retest scores are due not only to growth but also to practice effect. This is true despite the fact that, in general, identical tests are not employed on different testing dates, and that uniform practice material is distributed to all candidates. We shall, therefore, attempt to determine the gain due to practice, before evaluating the effect of growth.

## Increases Made by Repeaters after Ten Months

Retest statistics for the 3,539 junior-year girls are presented in Table 1, where the average score-increase after ten months is seen to be 58 points. A significant feature

of these statistics is the correlation of .85 between first- and second-test scores. This

TABLE 1  
RETEST GAINS ON S.A.T. (VERBAL), FOR  
THREE GROUPS OF JUNIOR-YEAR GIRLS

Test Dates	Average Score*		Gain	Test-Retest Correlation
	Initial Test	Retest		
June '42 & April '43 ..	456	527	71	.87
June '43 & April '44 ..	462	520	58	.85
June '44 & April '45 ..	467	515	48	.87
Total ...	462	520	58	.85

\*The standard deviations of the distributions for which averages are given in the table are: Initial Test: 68, 77, 69, and 72; Retest: 79, 82, 80, and 81.

high relationship indicates that individual candidates maintained nearly the same rank order within the repeater group on the second test as on the initial test. The magnitude of this relationship suggests that the increases are approximately uniform for these candidates.

The information from this sample does not permit an evaluation of practice vs. growth in the average gain of 58 points. We are able to conclude, however, that the combined effect of these two factors can be fairly accurately predicted.

This conclusion is stated with respect to junior-year girls retested after ten months. Similar studies have been made

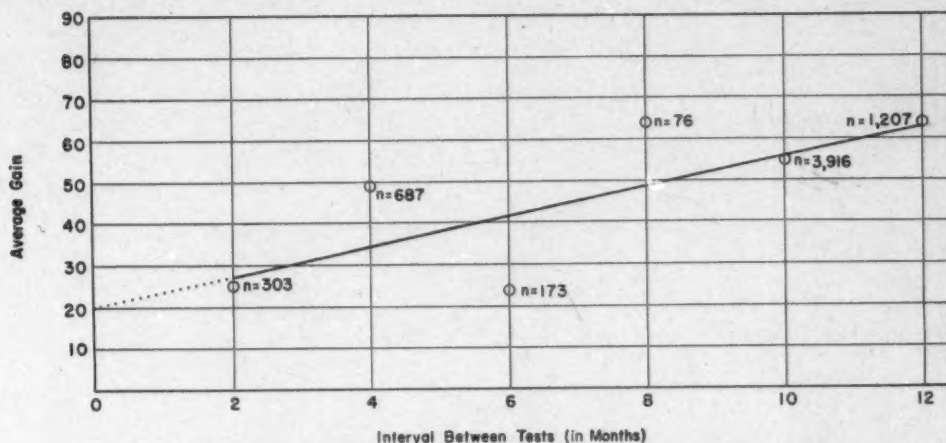


Fig. 1. Average gains in Verbal scores for candidates retested at different intervals.

of 34 additional samples, also drawn from the entire group of 1942-1945 repeaters. Each of these samples was homogeneous with respect to: (a) sex; (b) junior or senior status; (c) date of first test; and (d) date of second test. No consistent differences were found here between boys and girls or between junior and senior candidates, provided the interval between tests was the same.

#### Score-Increases in Relation to Interval between Tests

If we turn to the large sample of 6,362 candidates, component groups of whom were retested after intervals varying from two months to one year, we find that score-increases differ for groups retested after different intervals. The average gain for 303 candidates retested after two months was 25 points; for 1,207 candidates retested after one year, 64 points. The positive relationship between score-increases and the interval of time between first and second tests is depicted in Figure 1.

The gains presented in Figure 1 are average gains for the groups retested at various intervals, corrected for the level of attainment of each group on the first test. The repeater population usually scores

lower on the first test than the population of all S.A.T. candidates. In addition, groups of repeaters differ somewhat in the level of their initial test scores. It was necessary, therefore, to express score-increases from some common base; in this case the base selected was the representative score of 500, which is the general average of all S.A.T. candidates.

A "line of best fit" was applied to the average gains in Figure 1 and the "smoothed" average gains at each two-month interval are presented in Table 2, together with corresponding gains from initial test scores of 400 and 600. It will be noted, in Table 2, that there is a tendency for low-scoring candidates to gain somewhat more than high-scoring candidates.

#### Growth vs. Practice

In applying the statistics obtained with repeating candidates to the general population taking the Scholastic Aptitude Test it is necessary first to make proper allowance for the practice effect. One possible interpretation is that practice results in a general increase in Verbal scores which is uniform over the one-year period studied. Under this interpretation, the "line of best

TABLE 2  
AVERAGE GAINS\* OF CANDIDATES RETESTED AT  
DIFFERENT INTERVALS, EXPRESSED FROM INITIAL  
TEST SCORES OF 400, 500 AND 600

Interval (in months)	Average Gain from Initial Score of		
	400	500	600
2	33	27	22
4	40	35	29
6	47	42	36
8	54	49	43
10	61	56	50
12	68	63	57

\*Smoothed.

fit" of Figure 1 can be extended to a retest interval of zero months; and the gain observed at zero months then taken as the practice effect. This gain equals 20 points (see Figure 1). Gains larger than 20 points arise from some factor other than practice—presumably growth—which is related to the lapse of time and which is not unique to repeating candidates. This growth factor is responsible for a gain, on the average, of  $3\frac{1}{2}$  points per month (within the age-span covered by the present sample).

We thus have a "rule of thumb" procedure for the interpretation of Verbal score-increases made by repeaters. This procedure may be illustrated with reference to the average increase of 58 points reported above for the sample of junior-year girls retested after ten months. Twenty points of this increase may be attributed to practice. Thirty-five points of the increase we would attribute to growth ( $3\frac{1}{2}$  points multiplied by ten months). The remaining 3 points are due in part to the fact that the average score for this group on the initial test was below the general average of 500, and in part to sampling fluctuations.

#### Significance of Growth and Practice in Interpretation of Scores

There seems to be little doubt that the effects which we have called "growth" and "practice" result in a systematic increase in

scores. Are the resulting increases of such magnitude as to warrant adjustment of scores when these effects are known to be operative?

This question may best be answered with reference to a three-way classification of S.A.T. candidates applying for admission to college at any one time. The great majority of these candidates are tested only once, and within six months of one another. Since no retesting occurs within this group, practice need not be considered. The growth effect over the six months' period would be 21 points when comparing extreme cases (tested six months apart), and only 7 points when comparing April and June candidates.

Other candidates, also tested only once, are examined at dates more than six months apart. These candidates are usually junior-year students tested in June, and would normally be compared with candidates tested the following April. The growth effect for this group, in the ten-month interval between June and April, would be roughly 35 points.

The third group consists of repeaters. It is most feasible to consider only the second-test scores for this group, since the fact of retesting is often difficult to establish and scores on the first test may not be available. We might expect these scores to average 20 points too high because of the effect of practice.

There are thus two types of candidates for whom corrections would be in the neighborhood of 20 points or less, and another type for whom a correction of about 35 points is indicated. In relation to the full range of scores (200 to 800), the magnitude of the former correction is seen to be relatively small. It is, therefore, suggested that adjustment for practice or for growth over a period of six months or less be disregarded. The junior-year candidates, however, may be placed at some disadvantage when compared with senior-year candidates if the effects of growth are ignored.

### Summary

The present study is concerned with a sample of over 6,000 candidates ("repeaters") who took the verbal section of the Scholastic Aptitude Test twice. Two main questions investigated are:

a. If a candidate takes the Scholastic Aptitude Test on two different occasions, does practice effect cause an important gain in the retest score?

b. To what extent does the verbal ability of candidates grow in the ten-month period between June of the junior year and April of the senior year? Most candidates take the S.A.T. in April of their senior year; for those who take the test in June of their junior year, is an adjustment needed to make the junior-June and senior-April scores comparable?

In answer to the *first* question, it was found that practice effect accounts for about 20 points of the gain from initial to retest scores on the verbal section of the S.A.T. This is regarded as of negligible importance.

In answer to the *second* question, it was

found that growth in verbal ability between the junior and senior years of secondary school amounts to roughly  $3\frac{1}{2}$  points per month, on the average. Thus, the candidate who takes the S.A.T. in June of the junior year would be expected to make a Verbal score roughly 35 points *higher* if he took the test (as most students do) in April of the senior year. Hence, to make the junior-June and senior-April scores comparable, it is necessary to *add* 35 points to the June Verbal score. Similar adjustments are, of course, possible to render scores comparable as between any two testing dates.

Although neither growth- nor practice-effects are uniform from one candidate to another, a fairly high degree of regularity was observed, as indicated by a correlation of .85 between test and retest scores (when interval between tests is constant).

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Grateful acknowledgement is due to Mr. George B. Otis, who was primarily responsible for the planning of this study, and who supervised the preparation of initial tabulations.

### RESEARCH FELLOWSHIPS IN PSYCHOMETRICS

The Educational Testing Service, Princeton, N. J., is offering for 1949-1950 two research fellowships in psychometrics at Princeton University which lead to the Ph.D. degree. These fellowships, open to men acceptable to the Princeton Graduate School, carry an honorarium of \$2,200 a year and are normally renewable.

The fellows appointed will engage in

part-time research in the general area of psychological measurement at the offices of the Educational Testing Service and will, in addition, carry a normal program of studies in the Princeton Graduate School. Prerequisites are competence in mathematics and psychology. Information and application blanks may be obtained from the Director of Psychometric Fellowships, Box 592, Princeton, N. J.

## HOW TO REGISTER FOR COLLEGE-ENTRANCE EXAMINATIONS

The College Entrance Examination Board has set the following schedule for its series of entrance examinations:

January 15, 1949 (Saturday)

June 4, 1949 (Saturday)

April 9, 1949 (Saturday)

August 24, 1949 (Wednesday)

1. Each candidate should ascertain which particular examination-date is preferred by the college (or colleges) of his choice, and which particular tests are required or recommended.

2. Each candidate should obtain an application blank and a copy of the Board's BULLETIN OF INFORMATION. These materials are obtainable on request either from the Board's Princeton Office, P. O. Box 592, Princeton, N. J., or the Pacific Coast Office, P. O. Box 775, Berkeley, Calif.

3. The candidate should fill out the application blank in accordance with directions in the BULLETIN OF INFORMATION, and mail the completed blank, together with the appropriate fee, to the *proper office* of the Board (see below).

Candidates are urged to request their application forms from the College Board *about two months before the date of the examination*—and two months earlier yet, in the case of applicants in distant countries. It takes time for the request for an application blank to reach the Board; it takes more time for the application blank and the accompanying BULLETIN OF INFORMATION to reach the candidate (these printed materials are normally dispatched by third-class mail); and again it takes time for the completed application blank and fee to reach the Board. Moreover, *it is always wise to allow time for any special correspondence that may prove necessary.*

### Where to Mail Applications

1. **Pacific Coast Office.** Candidates who wish to take their examinations in any of the regions listed below should mail their completed applications and fees to the *Pacific Coast Office* of the Board (P. O. Box 775, Berkeley, Calif.):

California	Montana	Nevada	Hawaii
Oregon	Wyoming	Arizona	Australia
Washington	Utah	New Mexico	All Pacific Islands
Idaho	Colorado	Alaska	except Japan and Formosa

2. **Princeton Office.** Candidates who wish to take their examinations in regions not served by the Pacific Coast Office should mail their completed applications and fees to the *Princeton Office* of the Board (P. O. Box 592, Princeton, N. J.).

In all matters pertaining to tests of the College Entrance Examination Board, candidates **MUST** deal with the appropriate office of the Board.

### Closing Dates

1. The *normal closing dates* for the receipt of completed applications and fees in the *proper office of the Board* (see above) are as follows:

a. For candidates who wish to be examined in the United States or in Alaska, Hawaii, Canal Zone, Canada, Mexico, or the West Indies: *three weeks* before the date of the examination.

b. For candidates who wish to be examined *outside* the United States, Alaska, Hawaii, Canal Zone, Canada, Mexico, and the West Indies: *seven weeks* before the date of the examination.

2. Applications received after the specified closing dates are subject to a *penalty fee* of \$3.00. The penalty fee must accompany the application.

*No applications received in Berkeley, Calif. or in Princeton, N. J. later than one week before the examination will be accepted.* This is a rule without exception.

